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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/710,355  
Filing Date: July 02, 2004  
Appellant(s): IWAI ET AL.

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James A. Deland  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 12/04/2008 appealing from the Office action mailed 10/16/2008.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

No amendment after final has been filed.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

JP 2679162	Otomo	11-1997
JP 56-134089	Shima et al	10-1981
US 6343675	Seymour	02-2002

JP 2679162 was published as an application on 4-1990 as identified on the front cover of the translation and by Appellant in the IDS filed 11-2004. The B2 document of record was issued on 11-1997.

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

Claims 3-5, 7-9, 13, 14 and 18-21 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Independent claims 13 and 18 have been amended to recite "the first rotor member, the first second rotor member, and the second second rotor member are sandwiched between the plurality of fasteners and the hub mounting member and so that the first second rotor member and

the second second rotor member are pressed towards the first rotor member with a compressive force by the plurality of fasteners and the hub mounting member to prevent delamination of the first rotor member, the first second rotor member, and the second second." The original disclosure fails to support this limitation.

***Claim Rejections - 35 USC § 103***

Claims 3-5, 7-9, and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otomo (JP 2679162) in view of Shima et al (JP 56134089).

Otomo teaches a disk brake rotor apparatus capable of use as a bicycle brake rotor comprising: a generally circular first rotor (1) member with a first fixing (5) component structured to mount the first rotor member to a hub mounting member, a generally circular first second rotor (2) member with a first second fixing component (5) structured to mount the first second rotor member to the hub mounting member, wherein the first rotor member is attached to a side of the first second rotor member, and wherein the first second rotor member is formed of a material having greater braking wear resistance than the first rotor member wherein the first rotor member (1) comprises a first fixing component (5) structured to mount the first rotor member to a hub mounting member, a fastener 9 that fastens the hub mounting member (not shown, see page 4, line 23 of translation) to the first fixing component on the first rotor member and to the first fixing component on the first second rotor member so that the first rotor member and the first second rotor member are sandwiched between the fastener and the hub mounting member and so that the first rotor member and the first second rotor

member are pressed towards each other with a compressive force by the fastener and the hub mounting member to prevent delamination of the first rotor member and the first second rotor member from each other; wherein at least a majority of the disk brake rotor apparatus between outermost lateral side surfaces thereof is substantially free of voids (note figures 1-3, there are no voids between elements 2); wherein the first second rotor member is formed of a material having greater braking wear resistance than the first rotor member (note Otomo discloses the same materials as disclosed in the instant application); and wherein the first second rotor member is fixed to the first rotor member. Otomo remains silent as to the means of fixing the rotor components. Shima discloses a similar rotor and further teaches pressure welding as a known means of assembly. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize assembly methods such as pressure welding as taught and demonstrated by Shima to assemble the rotor of Otomo as an obvious means of manufacture, thereby ensuring proper durability and performance in the rotor and prevent failure of the brake discs comprised of dissimilar metals.

Claims 5 and 7-8 are deemed by the examiner to be product by process claims. Product by process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps.

Regarding claim 9, Otomo and Shima et al remain silent as to the specific dimensions of the rotor elements. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the dimensions of the rotor

elements as a matter of routine design and optimization, thereby providing the required strength and weight characteristics for the rotor.

Re claim 14, Otomo as modified does not teach wherein the fasteners are aluminum. It would have been obvious to one of ordinary skill in the art at the time the invention was made since aluminum fasteners are known for their corrosion resistance.

Claims 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otomo and Shima et al, further in view of Seymour (US# 6343675).

Otomo as modified, does not teach wherein the hub mounting member comprises a centrally disposed hub attachment component structured to be mounted to the hub; and a rotor attachment component extending radially outwardly from the hub attachment component and structured to mount to the first fixing component, to the first second fixing component and to the second second fixing component. Seymour teaches a hub mounting member (Figure 3) comprising a centrally disposed hub attachment component structured to be mounted to the hub; and a rotor attachment component extending radially outwardly from the hub attachment component and structured to mount to the first fixing component, to the first second fixing component and to the second second fixing component. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided the hub mounting member of Seymour in the apparatus of Otomo as modified in order to facilitate connection of the rotor to the hub.

**(10) Response to Argument**

**Regarding the rejection under 112 1<sup>st</sup> paragraph:**

The examiner maintains that the original disclosure fails to support the feature of

"the first second rotor member and the second second rotor member are pressed towards the first rotor member with a compressive force by the plurality of fasteners and the hub mounting member to prevent delamination of the first rotor member, the first second rotor member, and the second second rotor member from each other;"

Appellant identifies figure 7 and the last sentence of paragraph [0026] for support. Figure 7 merely shows the hub arm 22a fastening the first rotor member, first second rotor member and second rotor member together. It does not identify any compressive force, nor any compressive force intended to prevent delamination of the rotor members as explicitly recited by the claims. Paragraph [0026] merely recites;

"[0026] While the above is a description of various embodiments of inventive features, further modifications may be employed without departing from the spirit and scope of the present invention. For example, in the above embodiment the rotor member 22b was mounted to the hub 17a through the hub mounting member 22a. However, as shown in Figure 9, a rotor member 122b may be fixed to a hub 117a without using a separate intermediate mounting member. In that case, a hub mounting member 117b with radially extending arms 117c is formed on hub 117a. The rotor member 122b has first and second ring-shaped rotor members 90 and 91 constructed in the same manner as in the first embodiment, with circumferentially spaced fixing components 90b and 91b protruding radially inwardly. The fixing components 90a and 90b may be fixed to the tips of arms 117c by a hexagonal head bolt 122c."

(Appellant's citation differs slightly as it does not include amendments to the specification submitted 11/02/2005, the amendment merely deleted two instances of "first and second").



The Examiner fails to find any mention of compressive forces or delamination in the noted paragraph. Further, the Examiner fails to find these features mentioned anywhere in the original disclosure. Instead the Examiner maintains that one skilled in the art, upon viewing the original disclosure, would determine that the fasteners were merely intended to provide attachment of the welded rotor layers to the hub.

The Appellant appears to argue that the disclosure suggests bolts, and bolts create compressive forces on the components attached. The Examiner first notes that the claims are more specific than a compressive force provided by a bolt. The claims specifically require a compressive force to prevent delamination of the rotor members, which is more specific. Nothing in the original disclosure indicates that the fasteners prevent delamination of the rotor members. Nothing in the original disclosure indicates that bolts should provide compressive forces, nor compressive forces to prevent delamination. While Appellant appears to rely on inherent compressive forces of bolt fasteners, no such fastener is shown or described in detail. Bolt fasteners can be used without providing compressive forces to elements being fastened. Compressive forces are not inherent to bolt fasteners. For instance, many bolts utilize a threadless shank portion which allows components to float on the fastener. Cooperating jam nuts are also used to securely bolt components without a compressive force. Since the original disclosure fails to show the bolts or describe them in detail, no inherent compressive force arrangement can be ascertained, let alone a compressive force of a degree required to prevent delamination of the components. The disclosure is devoid of such

features. Instead the fasteners are disclosed merely to provide attachment of the welded rotor layers to the hub.

**Regarding the rejection under 103 over Otomo (JP 2679162) in view of Shima et al (JP 56-134089):**

Appellant's argue that Otomo fails to disclose a compressive force created by the fastener to prevent delamination of the first rotor member and the first second rotor member from each other as recited by the independent claim 13. Limitations are read in light of the disclosure, however, the instant disclose fails to provide any guidance for interpretation of this feature. Note the 112 1st rejection above. Further, it is maintained that the fasteners of Otomo are capable of pressing the laminate to prevent delamination of the rotor. The collars are the same length as the thickness of the final rotor assembly and therefore would exert force should any separation (which inherently creates an increase in thickness) occur. Forces that resist movement of the rotors away from each other are necessarily oriented in a direction forcing the rotors toward each other. This can be considered a compressive force, as the force is in the compressing direction as opposed to the tension direction. The thin, zinc alloy collars of Otomo are also intended to behave as sacrificial anodes and be replaceable after corrosion. The collars do not appear to provide a significant structural function relating to the forces of the fastener connection and would not prevent compressive forces from being transmitted to the rotor member. It is maintained that the unsupported feature of

compressive force to prevent delamination of the rotor members fails to structurally distinguish the device of Otomo from the instant invention. Instead, one would expect the bolts of Otomo to behave in the same manner as Appellant's disclosed invention.

Appellant further argues the surprising result of preventing delamination is completely unrecognized by Otomo and Shima et al. The Examiner maintains that delamination prevention is also unrecognized by the original disclosure of the instant invention, as delamination is never mentioned in the disclosure. The limitations cannot be given any more weight than justified by the original disclosure.

It is maintained that the rejection is proper.

**Regarding the rejection under 103 over Otomo (JP 2679162) and Shima et al (JP 56-134089), in further view of Seymour (US 6343675):**

Appellant's arguments appear to be substantially similar to those provided for the rejection under 103 over Otomo and Shima et al. It is maintained that the rejection is proper for the reasons set forth above.

Regarding claim 19, the fasteners of Otomo are located radially inwardly from an inner peripheral surface of the rotor members (formed by openings 6). The inward connection is further taught in the hub/rotor connection arrangement suggested by Seymour. Appellant's arguments do not specifically address the interpretation of the location of the fasteners of Otomo and Seymour. Instead, Appellant appears to rely on

the "compressive force" limitations. These features have been addressed above. It is maintained that the rejections are proper.

Regarding claim 20, Seymour teaches a hub with radially outwardly extending arms (figure 3). Appellant's arguments do not specifically address the modification of Otomo in view of Seymour. Instead, Appellant appears to rely on the "compressive force" limitations. These features have been addressed above. It is maintained that the rejections are proper.

#### **(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Bradley T King/

Primary Examiner, Art Unit 3657

Conferees:

Robert Siconolfi /RS/

Darnell Jayne /dj/